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ABSTRACT

A generic, descriptive system dynamics model is presented for a California community college district single campus. It provides an analytical tool for community college administrators who must consider the dynamic effects of policy changes on the system as a whole, rather than on isolated components of the system, when corrective financial policies are called for by revenue cutbacks. In figure 1 of this Community College Finance Model, a causal-loop diagram illustrates structural assumptions and basic feedback loops. Four major sectors are identified: enrollment, cost, revenue, and tuition. Beginning with the enrollment sector, an admission rate permits students from three income categories to enter the community college. As the number of students increases, the amount of state revenue increases, but there are corresponding increases in the costs of education (salaries, employee benefits, supplies, operating expenses, capital outlay, etc.). Total costs equal total revenues when no tuition is charged. Should this situation change and total costs exceed revenues, a deficit in available funds would be created. This could be alleviated by charging tuition, but tuition creates a disturbance in admission rate. The results of conceptualizing and programming this flow model appear in tabular and graphic form. A bibliography is included. (RC)

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CALIFORNIA COMMUNITY COLLEGE EDUCATION:

POST PROPOSITION 13

by

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Various explanations have been offered for the financial crisis in higher education (Benson, 1975; Lombardi, 1972). Despite their relative success in maintaining institutional "health," community colleges in California have been caught in a struggle among competing groups for the tax dollar.

Proposition 13, the Jarvis-Gann initiative which was recently approved by California voters two to one, has sent "shockwaves" throughout higher education by placing a strict limit on local property taxes (Watkins, 1978).

California community colleges are faced with the unpleasant short-term prospect of drastic reduction in the local property tax base. In the longer run it seems that the explosive growth years of the 1960s have begun to level off requiring administrators to deal with new types of problems--problems for which new solutions must be found.

But before solutions to these complex problems may be found, it would be helpful for the decision maker to have an understanding of the dynamic, or time varying, effects of policy alternatives in order to discover answers for the "what happens if . . . ?" questions proposed by administrators, legislators, and the voting public (Koltai, 1975).

In an era of runaway inflation, increasing costs and exaggerated accountability, community college administrators in California, and in the nation, are faced with numerous decision alternatives for which there is no constructive framework for decision making. In the absence of this framework, many will be forced to fall back on their personal experiences as teachers and administrators and to compose an intuitive, mental model around which to base their opinions on policy.

One way of gaining a better understanding of the outcomes of corrective policies which may be proposed to resolve these complex problems is to build a model based upon certain assumptions about behavior in the problem area. Corrective policies may then be tested on the model before they are implemented in the real system.

System dynamics is a methodology appropriate for the design of a descriptive, generic, and dynamic social system model (Randers, 1973). It is particularly appropriate for asking "What if" questions. System dynamics was developed by Jay Forrester and his associates at the Massachusetts Institute of Technology, and it has been applied successfully to a wide variety of problems from urban growth and decline (Forrester, 1969) to industrial organizations (Forrester, 1961). Recently, it has been applied to the California Community College.

The Model

The causal-loop diagram in Figure 1 illustrates the structural assumptions and the basic feedback loops in the Community College Finance Model. Four major sectors may be identified--an enrollment sector, a cost sector, a revenue sector, and a tuition sector.

Beginning with the enrollment sector, an admission rate permits part time and full time students from three income categories to enter the community college. As the quantity of these students increases in size, the volume of weekly student contact hours (WSCH) increases, and the dollar amount of state revenue increases. But with the increase in WSCH comes a corresponding increase in the expenses of education. In California community colleges, these expenses are divided into seven

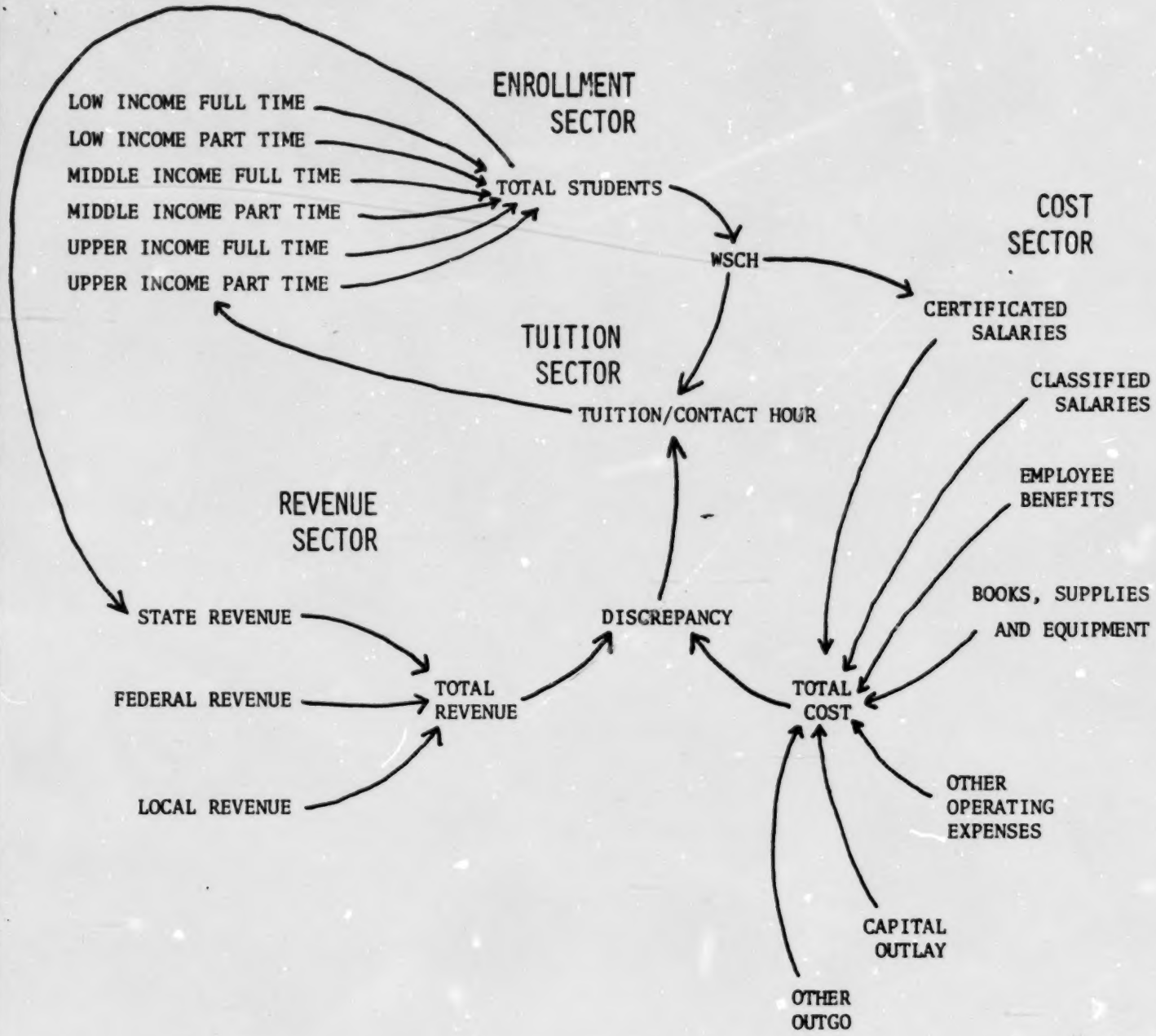

Figure 1: Causal Loop Diagram

object categories (*Budget and Accounting Manual*, 1978, pp. 11-12).

Total costs are equivalent to total revenues when no tuition is charged. Federal revenues are relatively fixed, generally in the form of categorical aid (Stine, 1978). State revenues are derived from specific formulae and are related to the level of students through average daily attendance (California Postsecondary Education Commission, 1977). Local revenues serve as the balancing mechanism. Should this situation be altered and total costs exceed total revenues, a discrepancy would be created between total cost and total revenue--a deficit in the amount of available funds. This discrepancy could be alleviated by charging a tuition for each student contact hour. The tuition, however, creates a disturbance which influences the admission rate.

This conceptualization has been flow diagrammed and programmed using the DYNAMO II software package developed by Alexander Pugh. The results appear graphically in Figure 2 and in tabular form in Table 1.

Conclusions

A generic, descriptive system dynamics model has been constructed of a single campus, California community college district. With no more refinement than currently exists, the model should provide an effective analytical tool for community college administrators who must consider the dynamic effects of policy change on the system as a whole rather than on isolated components of the system.

An additional advantage which the Community College Finance Model provides to the administrator is its easy communicability to those less sophisticated in the operations of the real system--specifically, the district board. The entire structure of the system can be examined in

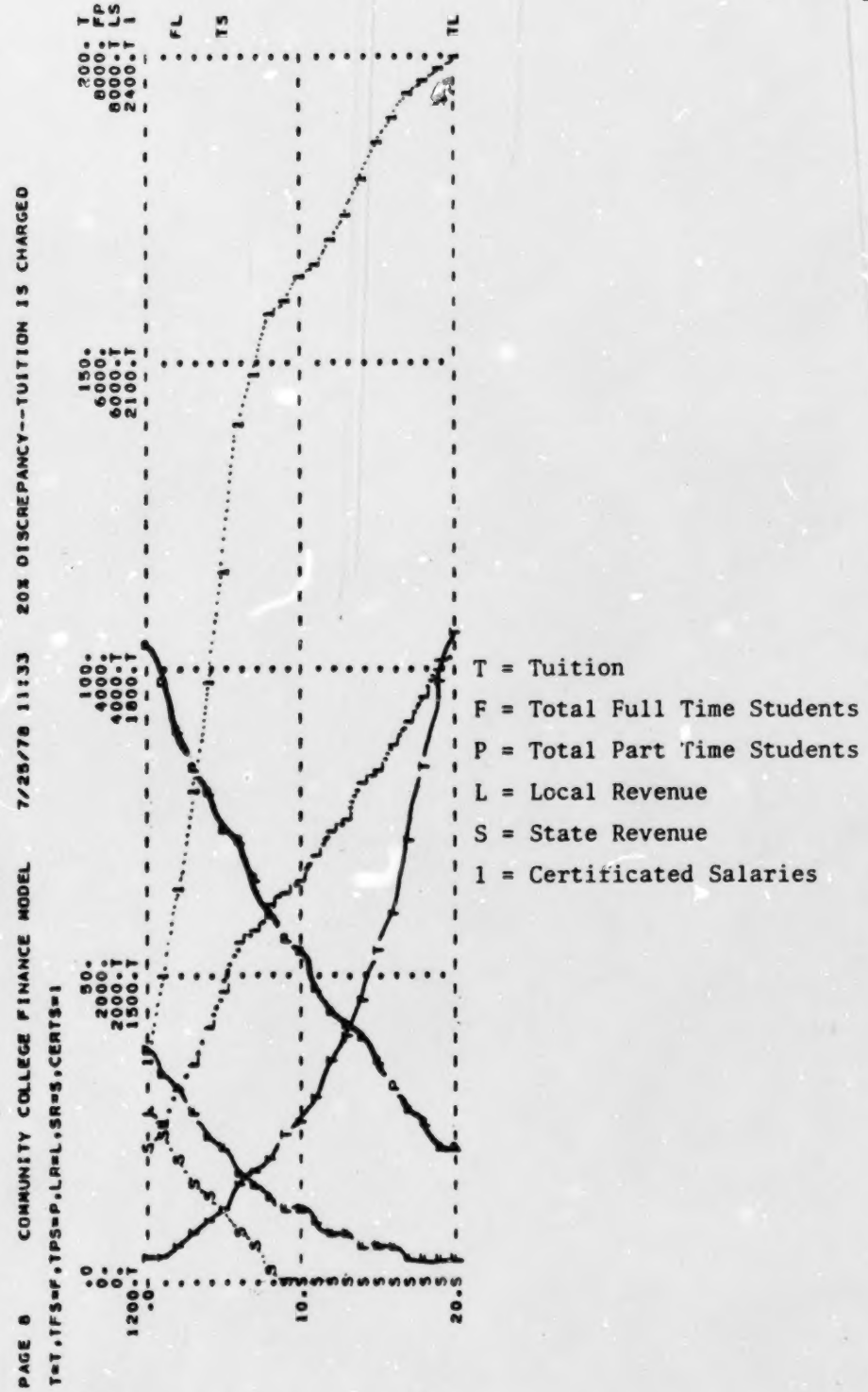

Figure 2: Tuition is charged to eliminate a 20 percent discrepancy

Table 1

Selected Variables When Tuition Is Charged

to Eliminate a 20% Discrepancy

	Time in Years					
	0	2	4	6	8	10
Tuition/Credit Hour	4.5	6.4	9.6	15.1	20.7	26.3
Total Full Time Students	1558	1251	987	738	570	446
Total Part Time Students	4132	3618	3225	2900	2385	2122
Regular Teachers	72	72	72	72	65	57
Non Regular Teachers	209	122	51	0	0	0

terms of the causal loop diagram with reference to the more complex flow diagrams or DYNAMO equations only when necessary. Output from the model simulation can be examined in easy to read graphic displays, or reference may be made to the statistics upon which the graphs are based.

REFERENCES

Benson, C. S. Education finance in the coming decade. Bloomington: Phi Delta Kappa Educational Foundation, 1975.

Budget and Accounting Manual, California Community Colleges. Sacramento: Chancellor's Office, April, 1978.

California Postsecondary Education Commission. Financial support for the California community colleges: Characteristics, objectives and alternatives. No. 77-3, CA. 1977.

Forrester, J. W. Industrial dynamics. Cambridge, Mass.: MIT Press, 1961.

Forrester, J. W. Urban dynamics. Cambridge, Mass.: MIT Press, 1969.

Koltai, L. A prospective for the future: Community colleges for the 1980s. Paper presented to the Research Conference of the California Community and Junior College Association, Pacific Grove, California, April 30, 1975, ED-105-958.

Lombardi, J. The financial crisis in the community college. Los Angeles, California: ERIC Clearinghouse for Junior Colleges (Topical paper No. 29), February 1972.

Randers, J. A framework for discussion of model conceptualization. Paper presented at the meeting of the Soviet-American Conference on Social Simulation, Sukhumi, Georgia, USSR., October 1973.

Stine, C. W. Personal communication, June, 1978.

Watkins, B. T. Campuses gird for consequences of taxpaper revolt. The Chronicle of Higher Education, 1978, 15, 1-11.

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